UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/436,506	11/09/1999	THOMAS WILLIAM BISH	TU9-99-036	6740

24033 7590 12/30/2003

KONRAD RAYNES VICTOR & MANN, LLP
315 SOUTH BEVERLY DRIVE
SUITE 210
BEVERLY HILLS, CA 90212

EXAMINER	
ALI, MOHAMMAD	
ART UNIT	**PAPER NUMBER**
2177	

DATE MAILED: 12/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/436,506	BISH ET AL.	
	Examiner	Art Unit	
	Mohammad Ali	2177	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. This communication is responsive to the Amendment with RCE filed on December 17, 2003. Claims 1-27 are pending in this Office Action.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. ('Tanaka' hereinafter), US Patent 5,542,064 in view of Arnon et al. ('Arnon' hereinafter), US Patent 6,493,796 B1.

As to claim 1 Tanaka substantially discloses the claimed invention, including a data set one of two storage devices, each including a copy of the data set (col. 2, lines 41-47). Maintaining a flag for each storage device indicating whether an attempt of the data set from the storage deivice failed (col. 7, lines 4-7). Maintaining a data level of each plurality of data sets,.....(numerals 120-1, 120-2 and 120-3 designate areas in which history numbers for indicating the order of updating of data and data multiplicities, see col. 5, lines 8-11, Fig. 3 et seq, Tanaka). Receiving a request to one data set (secondary storage device 101 in response to user's requests and receives results of processing from the secondary storage device 101, see col. 3, lines 54-55, Fig. 1, Tanaka). Selecting the storage device having higher data level if the data level are not equal (col. 7, lines 4-17 et seq). Consequently, ...,selecting the storage device having the flag indicating that no attempt failed if the flag for the other storage device indicates that one attempt of the data set from storage device failed,.... (col. 7, lines 4-17). Finally, the claimed step of date set from the selected storage device is taught by Tanaka as the selecting storage units from the from the plurality of storage device (col. 2, lines 56-60).

Although Tanaka discloses accessing a data, which appear to be analogous to data set being copied one of two storage devices. However, Amon discloses an analogous system wherein the table is accessible to the source storage system (col. 14, lines 19-26 et seq). It would have been obvious to one ordinary skill in the art of data storage devices accessing, at the time of the present invention, to combine the teachings of the cited references because the accessing a data set of Arnon system

would have provided Tanaka's with the necessary infrastructure, which would allow accessing a data from multiple storage controlling devices, as explained in Arnon, col. 14, lines 19-26 et seq.

Claim 10 has same subject matter as of claim 1 and essentially rejected for same reasons as discussed in claim 1.

Although Tanaka discloses accessing a data, which appear to be analogous to data set being copied one of two storage devices. However, Arnon discloses an analogous system wherein the table is accessible to the source storage system (col. 14, lines 19-26 et seq). It would have been obvious to one ordinary skill in the art of data storage devices accessing, at the time of the present invention, to combine the teachings of the cited references because the accessing a data set of Arnon system would have provided Tanaka's with the necessary infrastructure, which would allow means for accessing a data from multiple storage controlling devices, as explained in Arnon, col. 14, lines 19-26 et seq.

Claim 19 has same subject matter as of claim 1 except `computer readable storage media includes at least one computer program embedded' and Tanaka taught as the disk drive management table contains the disk drive number registration are for identifying disk drives at col. 6, lines 64-67 and essentially rejected for the same reasons as discussed in claim 1.

Although Tanaka discloses accessing a data, which appear to be analogous to data set being copied one of two storage devices. However, Amon discloses an analogous system wherein the table is accessible to the source storage system (col. 14,

lines 19-26 et seq). It would have been obvious to one ordinary skill in the art of data storage devices accessing, at the time of the present invention, to combine the teachings of the cited references because the accessing a data set of Amon system would have provided Tanaka's with the necessary infrastructure, which would allow accessing a data from multiple storage controlling devices, as explained in Arnon, col. 14, lines 19-26 et seq.

As per claims 2, 11, and 20, the applicants' selection criteria for the first and second storage devices is unrelated to values of the flag if the flags for both devices have the same value is taught by Tanaka as selection from the disk drives having satisfyirg the condition (col. 9, lines 47-48).

As per claims 3, 12, and 21, Tanka discloses synchronizing (time) the data set on both first and second storage devices (col. 8, lines 44-47)

As per claims 4, 13, 22, applicants' claimed flag is maintained for each data set in the first and second storage devices,.... and wherein the first and second storage devices have the same data sets taught by Tanaka as multiple identical data store in a plurality of storage units (col. 2 lines 26-29).

As per claims 5, 14, 23, applicant's claimed step the data set from one of a third and fourth storage devices if the data set is in one of the third and fourth storage devices, wherein the steps of selecting one of the first and second storage devices and the data from one of the first and second storage devices occurs if the data set is not in one of the third and fourth storage devices is taught by Tanaka at col. 13, lines 51-56 et seq. Tanaka further teaches the data set from the first storage device to the third

storage device when data set from the first storage device taught by Tanaka at col. 13, lines 51-56 et seq. Further the claimed step data set from the second storage device to the fourth storage device from the first storage device taught by Tanaka at col. 13, lines 51-56 et seq.

As per claims 6, 15, and 24, scheduling write operation to copy data from the third storage device to first storage device taught by Tanaka at col. 13, lines 51-56 et seq. The claimed step receiving a request to after scheduling the write operation the data set taught by Tanaka at col. 13, lines 48-56. Finally, recalling the data set from the third storage device ,...taught by Tanaka at 13, lines 48-56.

As per claims 7, 16, and 25, first and second storage devices from which recall the data set if requested data set has been copied to the first and second storage devices,...taught by Tanaka at col. 13, lines 48-56.

As per claims 8, 17, and 26, data level is maintained for data set in both the third and fourth storage devices,... taught by Tanaka at col. 13, lines 59-62.

As per claims 9, 18, and 27, randomly selecting one of the third and fourth storage devices .... taught by Tanaka at col. 9, lines 47-48.

Remarks

Applicants argue that Tanaka and Arnon do not teach, 'each of the two storage devices include a copy of the same data set, and flag maintained for each storage device indicating whether a previous access attempt to the data set failed '.

In response to Applicants arguments, the Examiner respectfully submits that in particular, Tanak teaches this limitation as, controlling multiple reading/writing of

identical data in a secondary storage device having a plurality of storage units to make it easy to recover data in the case of occurrence of a failure in a storage unit (see col. 2, lines 43-46 et seq). When a failure occurs in any one of the disk drives 16-1 to 16-n and the drive processors 17-1 to 17-n, a flag indicating that the failure disk drive cannot be used is set in a corresponding area. The occurrence of a failure is reported to the multiple-write/fault manager, see col. 10, lines 37-44, Figs. 5, 9 et seq. Although Tanaka discloses accessing a data, which appear to be analogous to data set being copied one of two storage devices. However, Arnon discloses an analogous system wherein the table is accessible to the source storage system (col. 14, lines 19-26 et seq). It would have been obvious to one ordinary skill in the art of data processing art, at the time of the present invention, to combine the teachings of the cited references because the accessing a data set of Arnon system would have provided Tanaka's with the necessary infrastructure, which would allow means for accessing a data from multiple storage controlling devices, as explained in Arnon, col. 14, lines 19-26 et seq.

Applicants argue that Tanaka and Arnon do not teach, 'a data level for each of the plurality of data sets in each storage device indicating a number of times the data set has been updated,... '.

In response to Applicants arguments, the Examiner respectfully submits that in particular, Tanak teaches this limitation as, numerals designate areas in which disk drive numbers for indicating the order of updating data and multiplicities (see col. 5, lines 8-11 and 13, lines 58-63 et seq).

Applicants argue that Tanaka and Arnon do not teach, 'recalling a data set from a third storage device if a schedule write from the third to first storage device has not yet copied data,...'.

In response to Applicants arguments, the Examiner respectfully submits that in particular, Tanak teaches this limitation as, when the number of the disk drives selected in the step 725 cannot satisfy the multiplicity, disk drives having free areas, retrieved in the step 720, are selected from disk drives in which the number of I/O commands is larger than the predetermined number (a step 735). A judgment is made as to whether the number of the disk drives selected in the steps 725 and 735 can satisfy the multiplicity received from the multiple-write/fault manager 80 (a step 740). The number of the selected disk drives cannot satisfy the multiplicity still, supplements are selected from disk drives having data satisfying the condition, retrieved in the step 710 (a step 745), see col. 9, lines 37-49 et seq.

Contact Information

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad Ali whose telephone number is (703) 605-4356. The examiner can normally be reached on Monday to Thursday from 7:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (703) 305-9790 or Customer Service (703) 306-5631. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306 for any communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-9600.

Mohammad Ali

Patent Examiner

AU 2177

MA

December 27, 2003